Dr. Frank Appiah: VISUALISING Appiah Computation on Sequence Numbers.

ApCompute - Numerical Analysis

UNIVERSITY OF GHANA
SCHOOL OF PHYSICAL
AND MATHEMATICAL SCIENCES.

22 AUGUST, 2026.

This is real analysis made from decimal symbols of integers.

(1) Integers: 0 1 2 3 4 5 6 7 8 9.

(2) Series: 0, 1, 2 , 3, 4, 5, 6, 7, 8, 9.

(3) Sequence: [0 1 2 3 4 5 6 7 8 9].

(4) Set: {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}.

(5) Numerical: 0123456789.

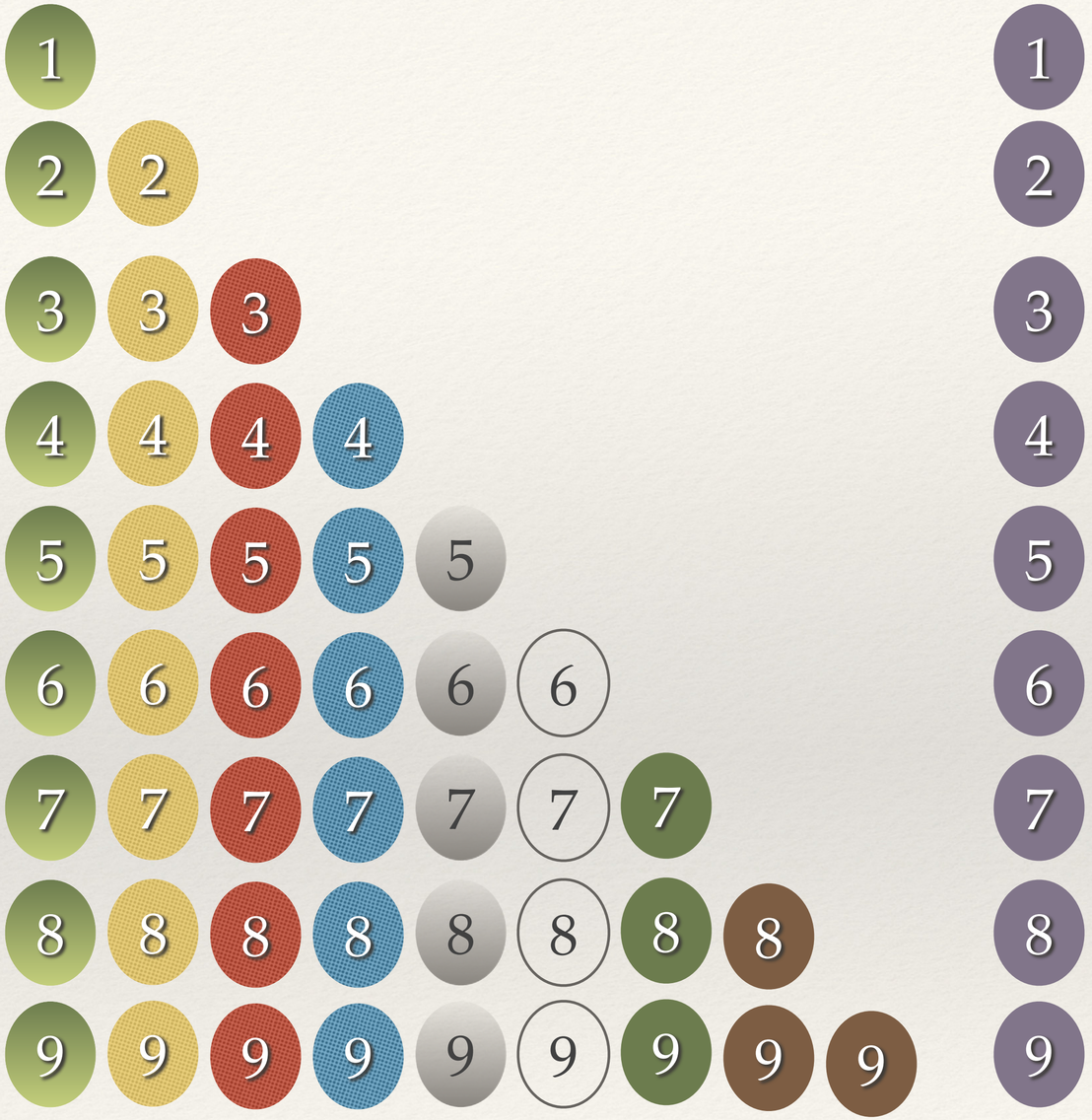
Topics:

1. Plotting: Visuals
2. Minimisation
3. Maximisation

*Graph Representation : **Plotting***

Division Representation Count- NUMERICAL METHODS

Visualising the number one (1) to (9) with circular coins or dotted colour points. No coin represents a zero number point.



1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

6 6 6 6 6 6

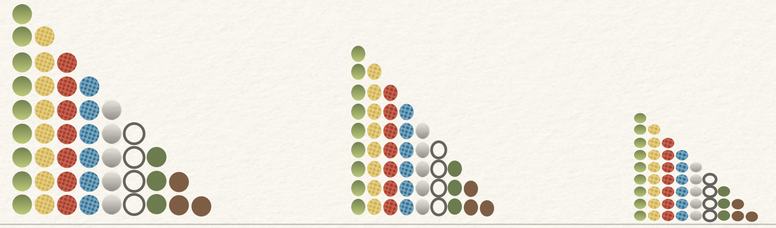
7 7 7 7 7 7 7

8 8 8 8 8 8 8 8

9 9 9 9 9 9 9 9 9

1

2



3

4

5

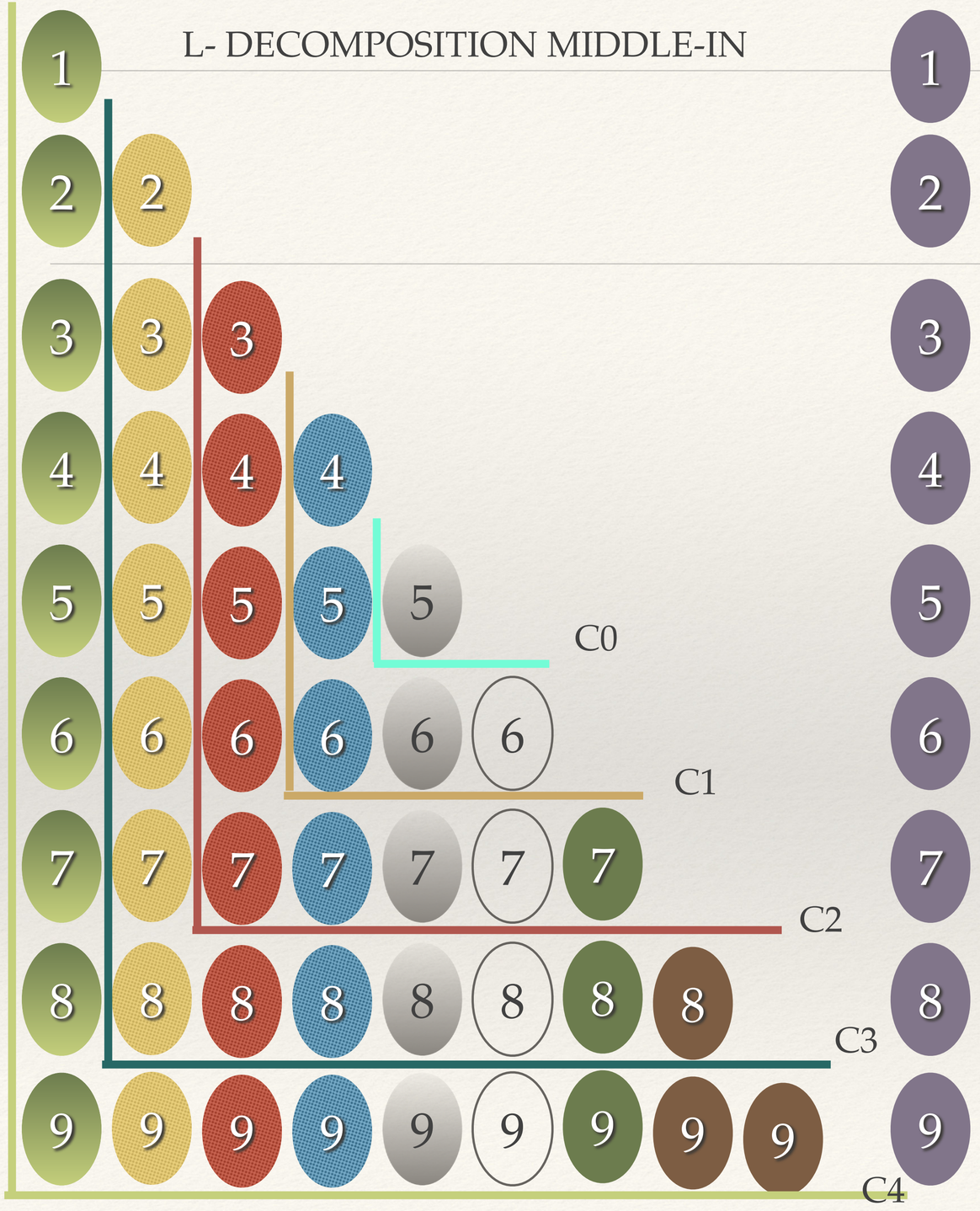
6

7

8

9

L- DECOMPOSITION MIDDLE-IN



1. Minimisation

OPERATION visualisation

L-Cauchy Series:
C0, C1, C2, C3, C4.
C0: 5.
C1: 4, 5, 6.
C2: 3, 4, 5, 6, 7.
C3: 2, 3, 4, 5, 6, 7, 8.
C4: 1, 2, 3, 4, 5, 6, 7, 8, 9.

L-Cauchy Series :
C0, C1, C2, C3, C4.
C0: 5.
C1: 4, 5, 6.
C2: 3, 4, 5, 6, 7.
C3: 2, 3, 4, 5, 6, 7, 8.
C4: 1, 2, 3, 4, 5, 6, 7, 8, 9.

Cauchy Visuals

Summation of Series

L-Cauchy Series :
C0, C1, C2, C3, C4.
C0: 5.
C1: 4, 5, 6.
C2: 3, 4, 5, 6, 7.
C3: 2, 3, 4, 5, 6, 7, 8.
C4: 1, 2, 3, 4, 5, 6, 7, 8, 9.

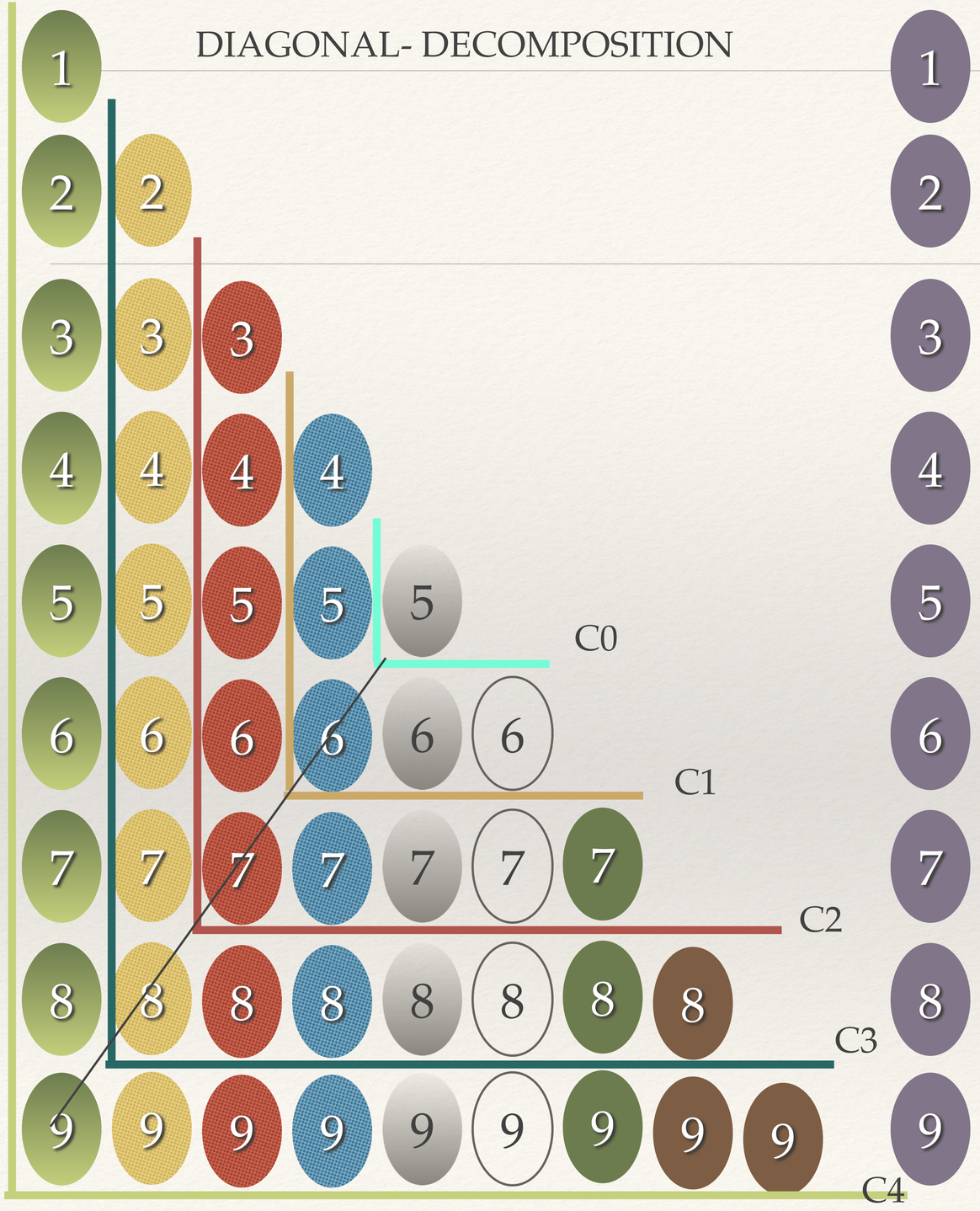
C0 Sum= 5.
C1 Sum=4+5+6=15.
C2 Sum=3+4+5+6+7=25
C3 Sum=2+3+4+5+6+7+8=35
C4 Sum=1+2+3+4+5+6+7+8+9=45.

Summation Series= C0_sum, C1_sum, C2_sum, C3_sum, C4_sum.
= **5, 15, 25, 35, 45.**

THIS IS MULTIPLE OF 5.

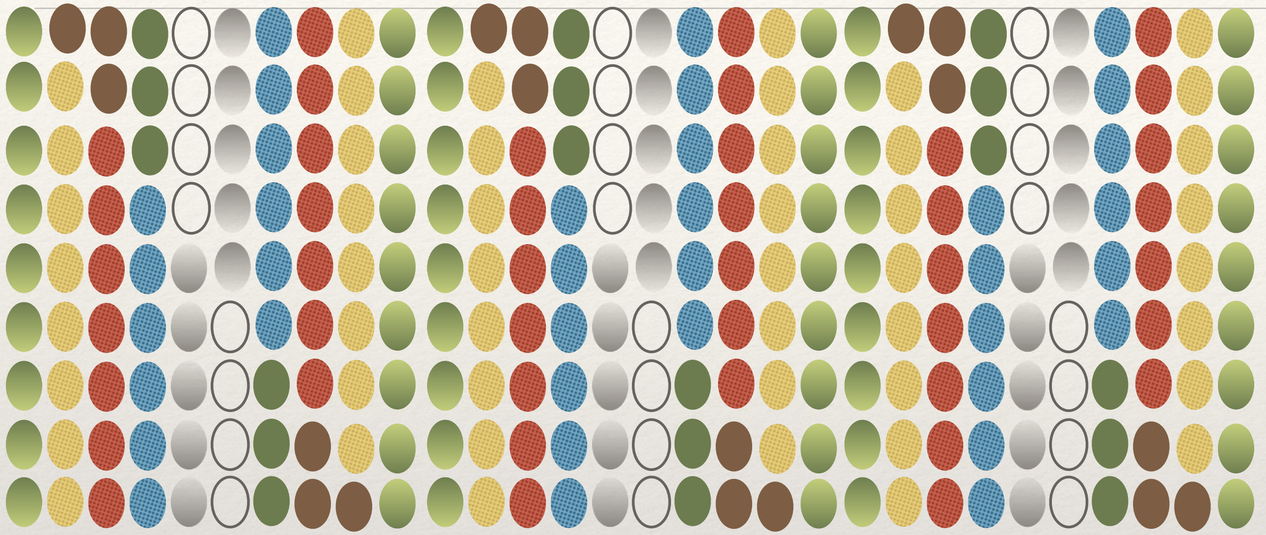
Summation of Series= C0_sum + C1_sum + C2_sum + C3_sum + C4_sum.
= **5 + 15 + 25 + 35 + 45**
= 125.

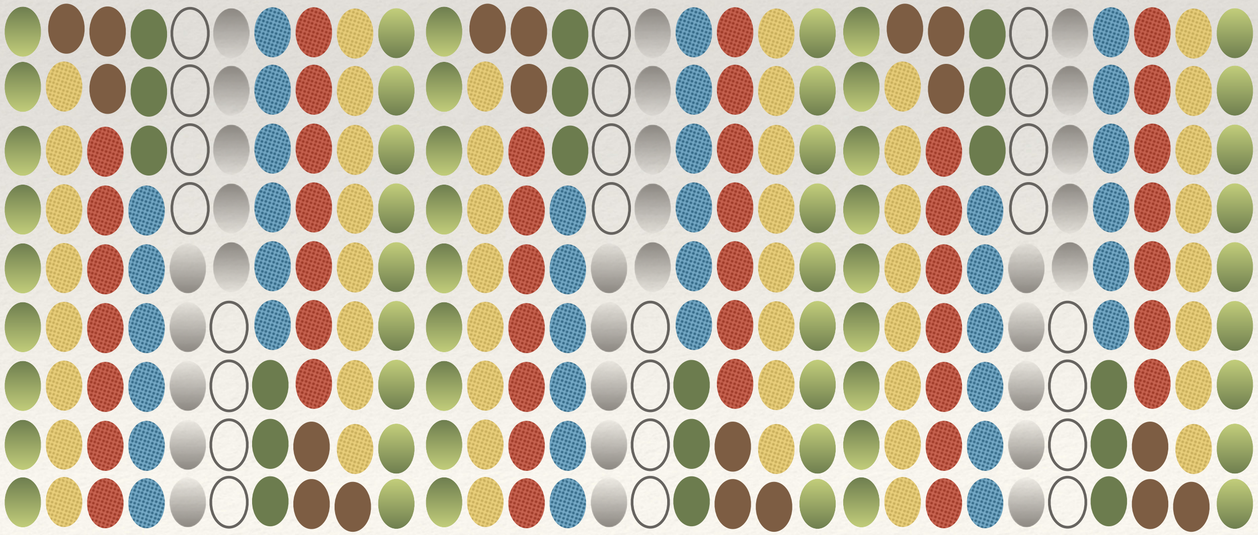
DIAGONAL- DECOMPOSITION



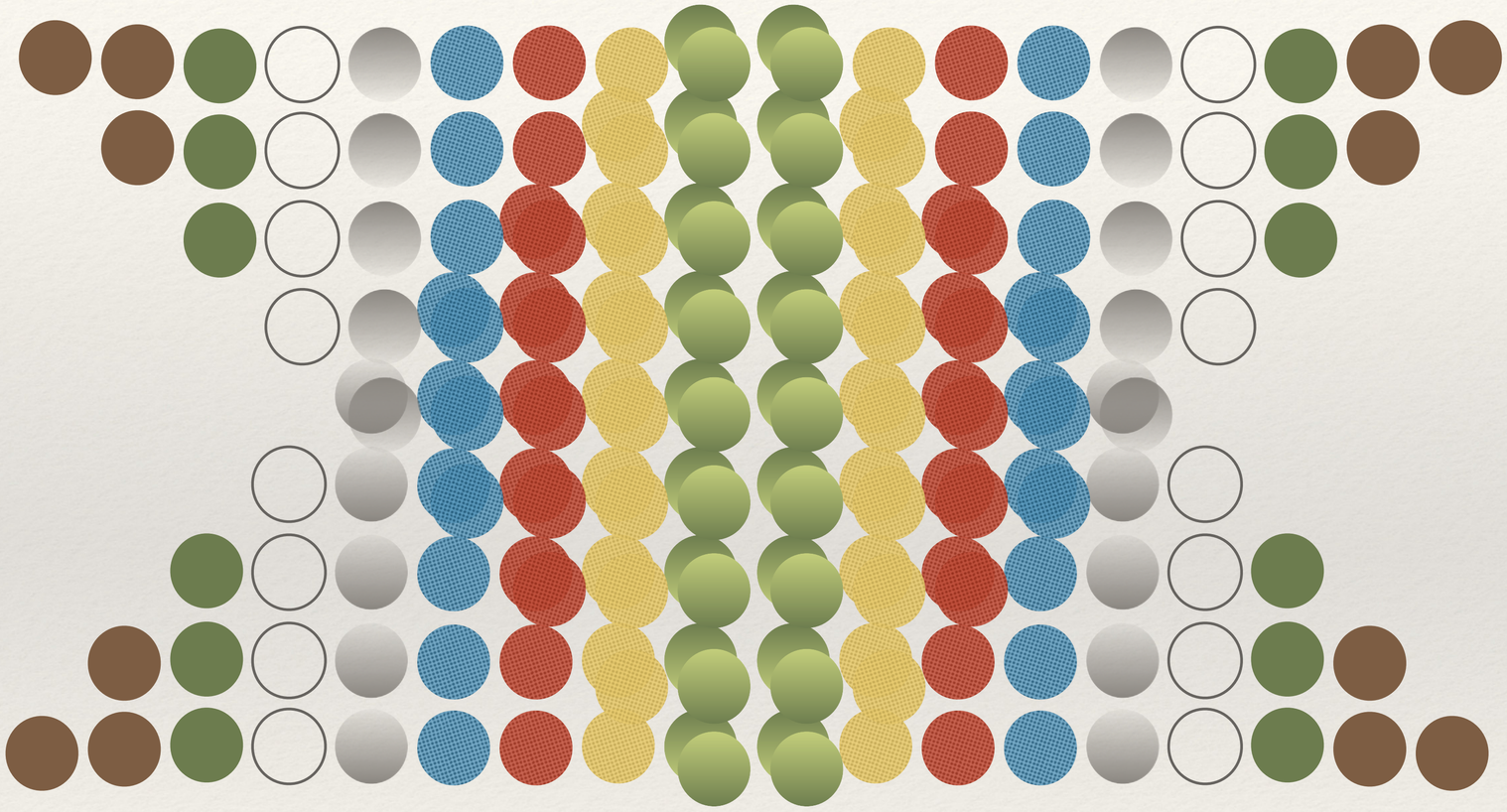
OPERATION visualisation

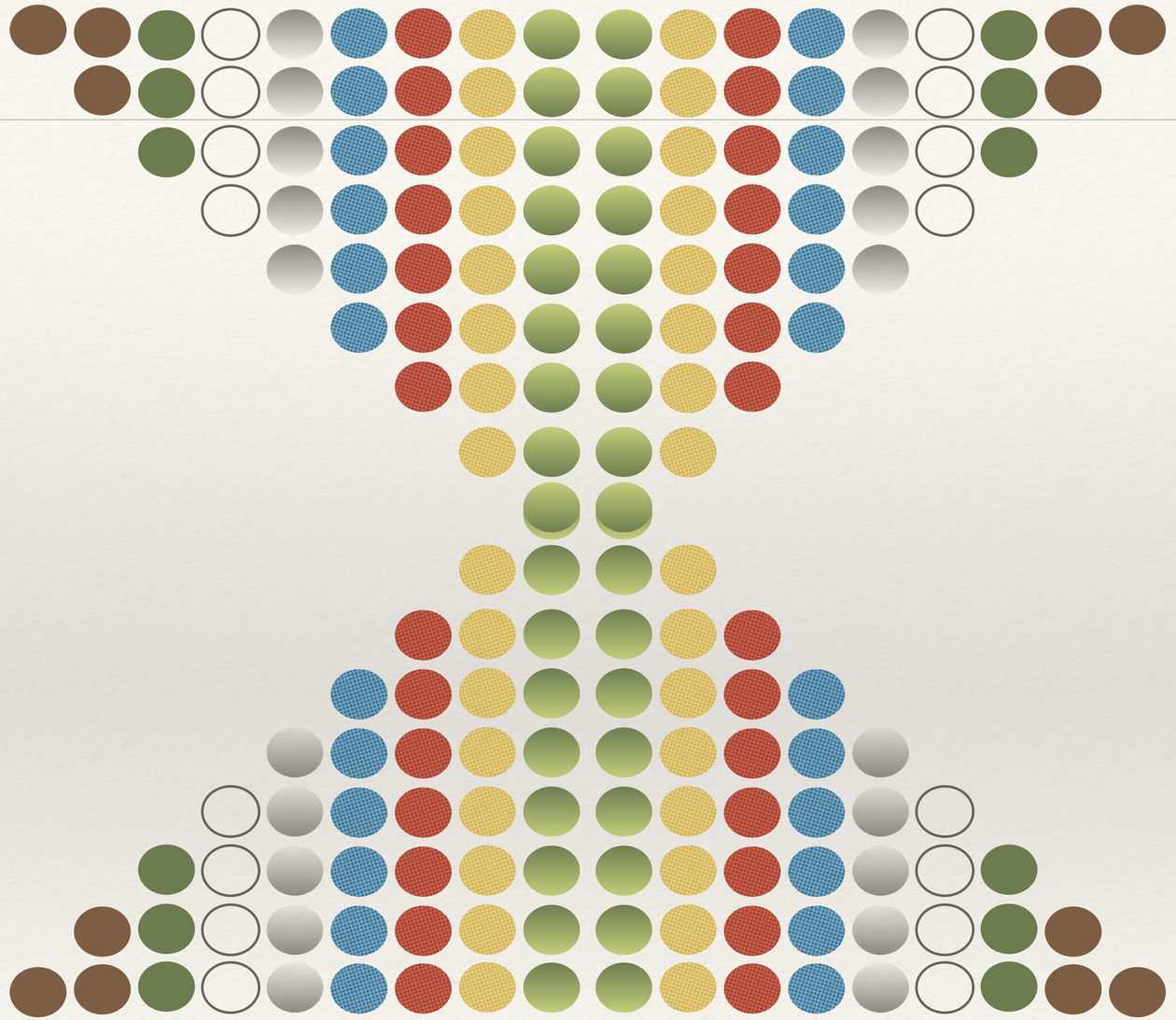
1	6	6	6	6	6	6	6	6	6
2	2	8	8	8	8	8	8	8	8
3	3	3	7	7	7	7	7	7	7
4	4	4	4	6	6	6	6	6	6
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	9	4	4	4	4
7	7	7	7	7	7	7	3	3	3
8	8	8	8	8	8	8	8	2	2
9	6	6	6	6	6	6	6	6	1

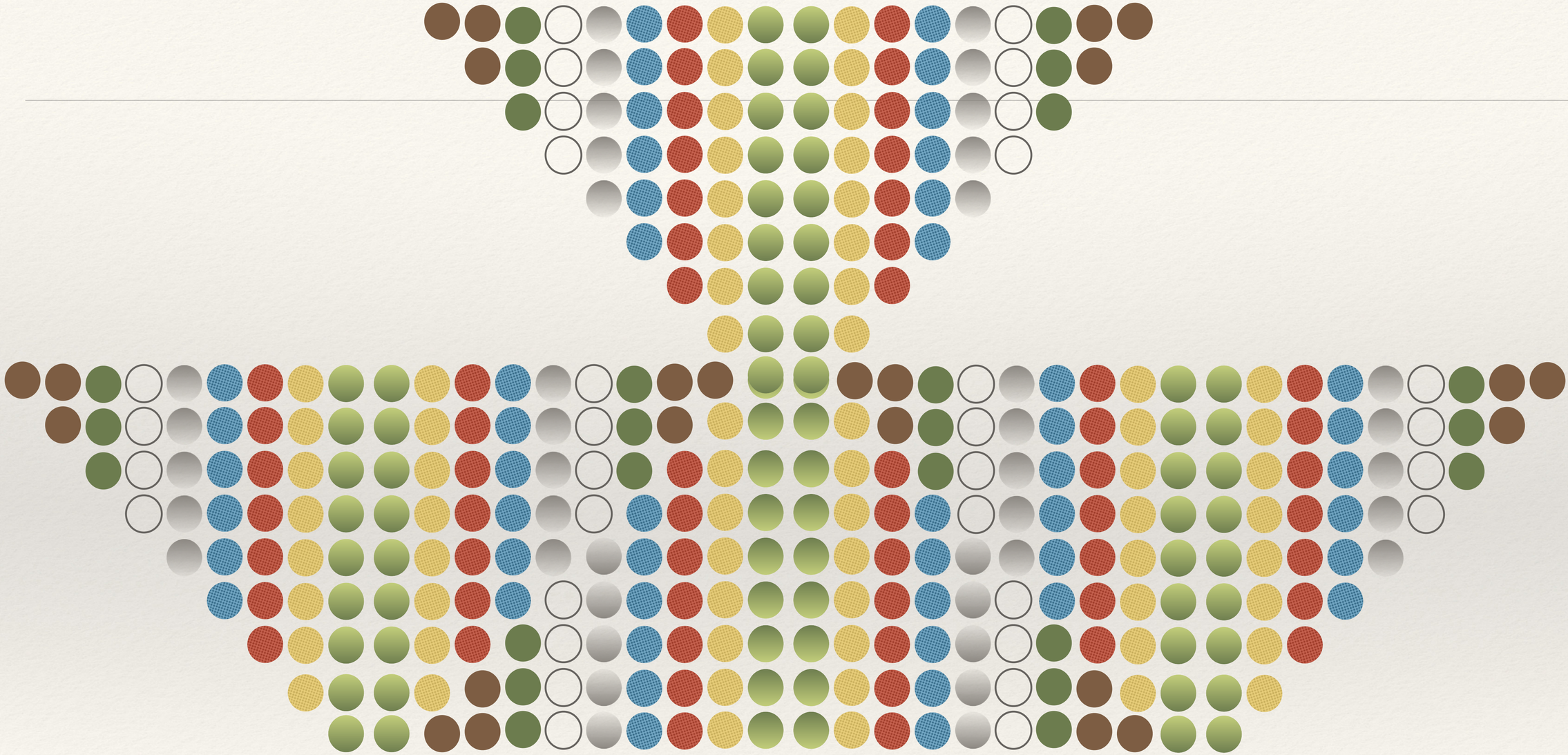


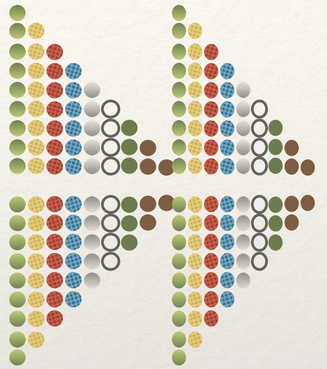


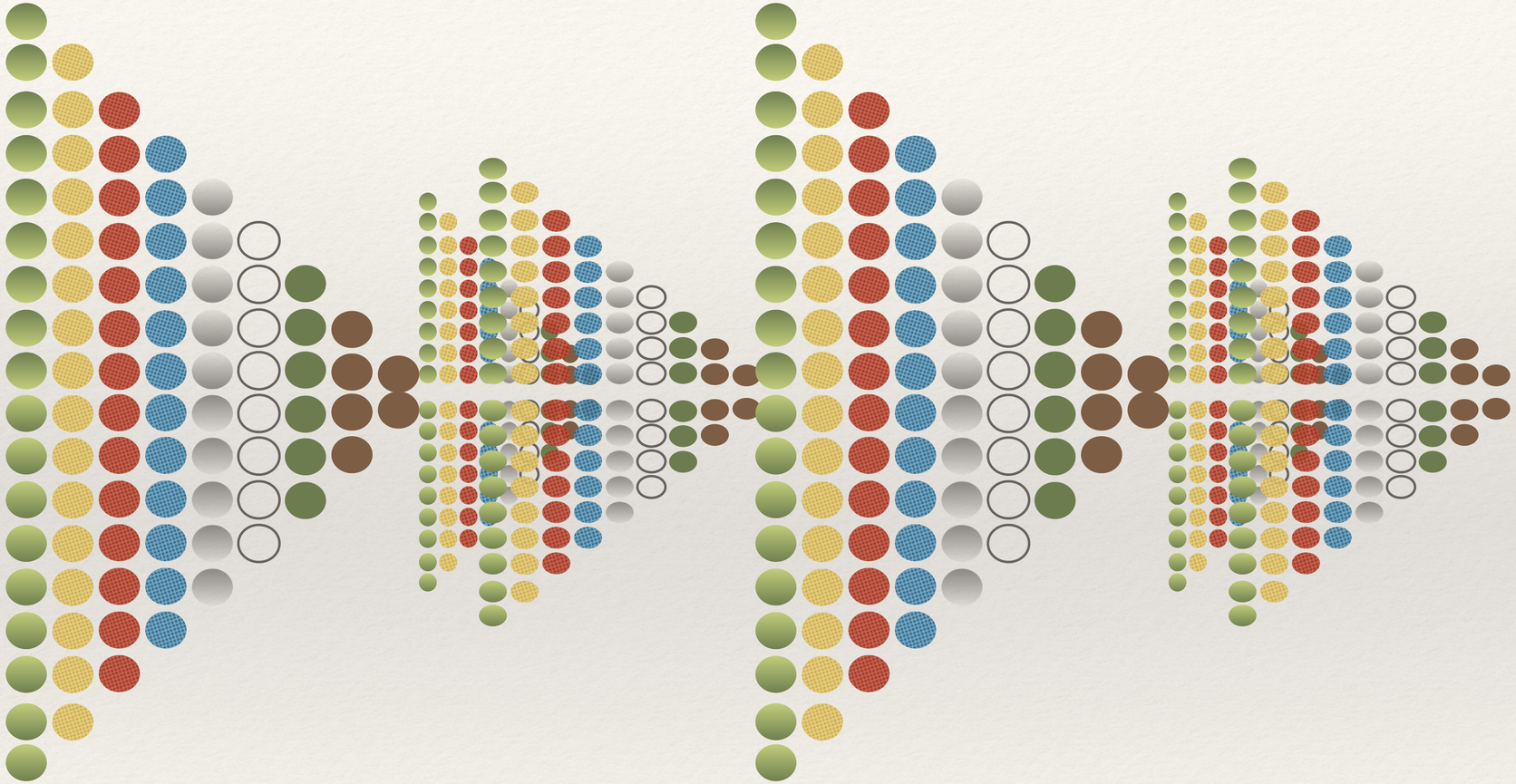
ISEE VISUAL INFORMATION

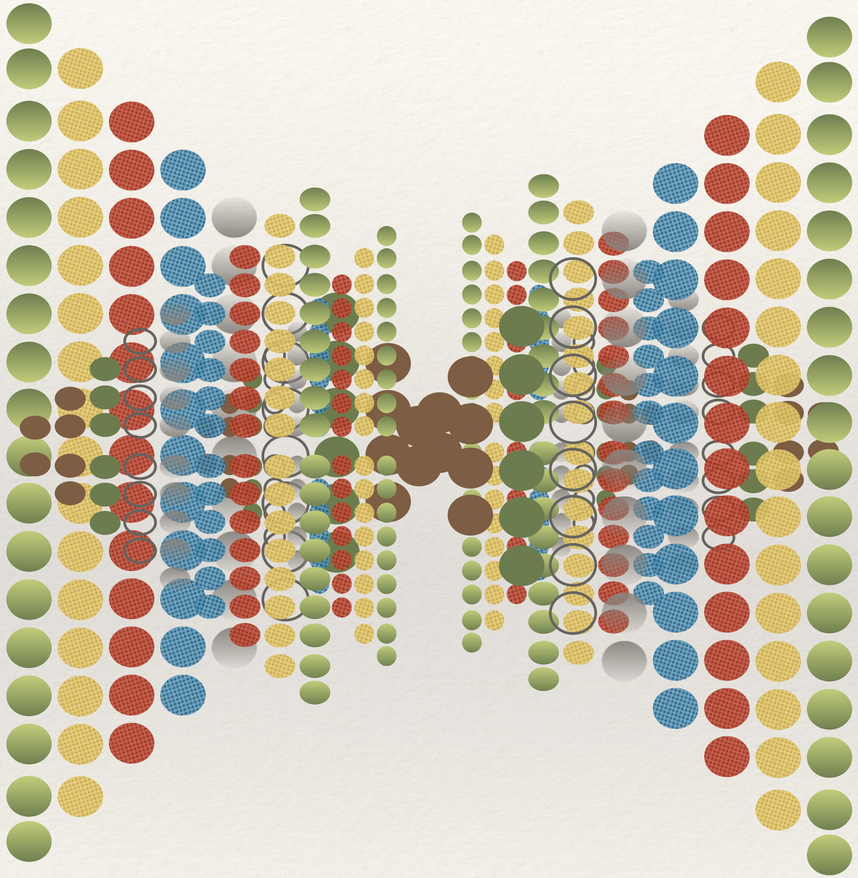


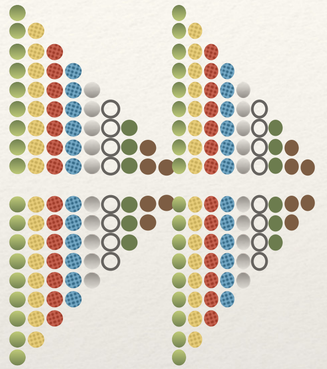


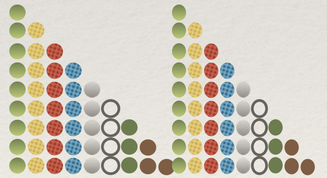








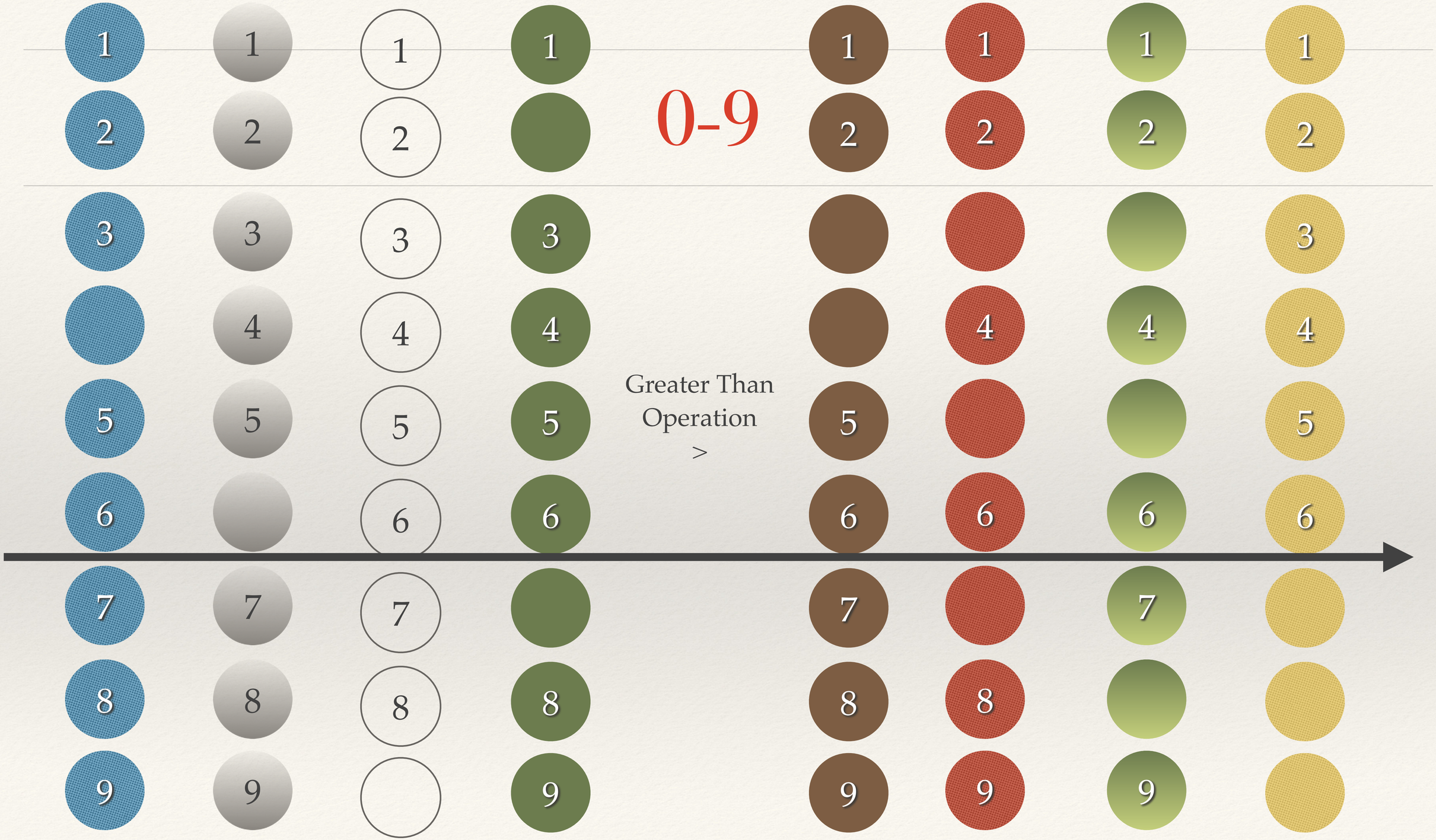




0-9
Decimal Symbols

Look at Number Representation(Dot Exclamation)

- D1!: 124679
- D2!: 123456
- D3!: 124689
- D4!: 12356789
- D5!: 12345789
- D6!: 12345678
- D7!: 1345689
- D8!: 1256789


0-9
Greater Than
Operation
>
ZERO PLOTING

Colour Matching: Cyan > grey > white > dark green > brown > red > light green > yellow

Look at Numerical Comparison (>)

- 12356789 > 12345789 > 12345678 > 1345689 > 1256789 >124689 > 124679 > 123456.

Look at Numerical Comparison Index(>)

- (1) > (2) > (3) > (4) > (5) > (6) > (7) > (8).

Look at Cardinal Values (>)

- 12,356,789 > 12,345,789 > 12,345,678 > 1,345,689 > 1,256,789 > 124,689 > 124,679 > 123,456.

Look at Numerical Operations (+)

- 12356789 + 12345789 = 24702578
- 12345678 + 1345689 = 13691367
- 1256789 + 124689 = 1381478
- 124679 + 123456 = 248135

Look at Difference Values (>)

- 12356789 — 12345789 = 11000
- 12345678 — 1345689 = 10999989
- 1256789 — 124689 = 1132100
- 124679 — 123456 = 1223

Look at Numerical Operations (/)

- 12356789 / 12345789 = 1.000890992062152
- 12345678 / 1345689 = 9.174243082911431
- 1256789 / 124689 = 10.079389521128568
- 124679 / 123456 = 1.009906363400726

Look at Numerical Operations (x)

- 12356789 X 12345789 = 152554309711521
- 12345678 X 1345689 = 16613443082142
- 1256789 X 124689 = 156707763621
- 124679 X 123456 = 15392370624

Numerical values of 12356789

(1) Integers: 1 2 3 5 6 7 8 9

(2) Series: 1, 2 , 3, 5, 6, 7, 8, 9.

(3) Sequence: [1 2 3 5 6 7 8 9].

(4) Set: {1, 2, 3, 5, 6, 7, 8, 9}.

(5) Numerical: 12356789.

Numerical values of 12345789

(1) Integers: 1 2 3 4 5 7 8 9

(2) Series: 1, 2 , 3, 4, 5, 7, 8, 9.

(3) Sequence: [1 2 3 4 5 7 8 9].

(4) Set: {1, 2, 3, 4, 5, 7, 8, 9}.

(5) Numerical: 12345789.

Numerical values of 123456

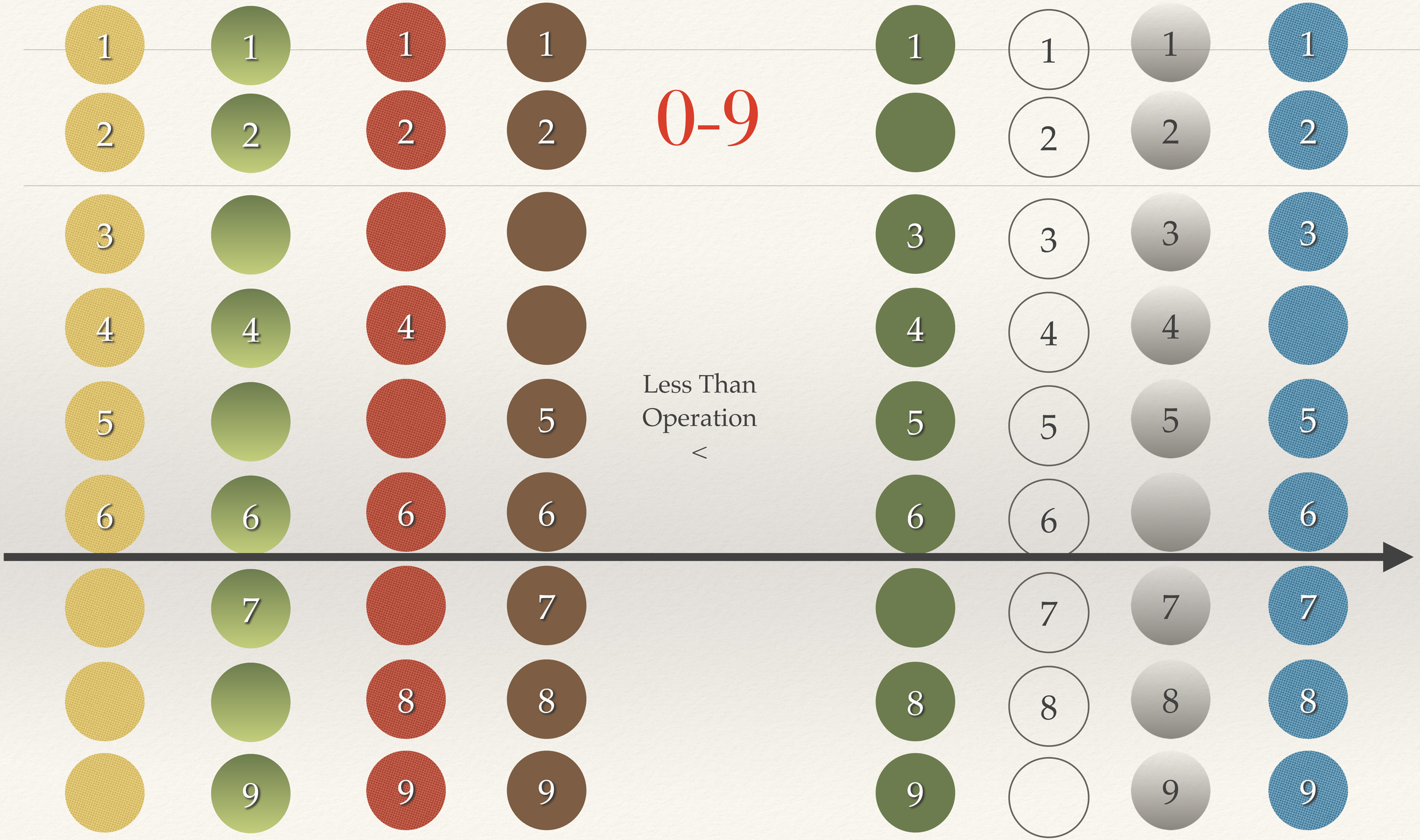
(1) Integers: 1 2 3 4 5 6

(2) Series: 1, 2 , 3, 4, 5, 6.

(3) Sequence: [1 2 3 4 5 6].

(4) Set: {1, 2, 3, 4, 5, 6}.

(5) Numerical: 123456.


0-9
Less Than
Operation
<

Colour Matching: yellow > light green > red > brown > dark green > white > grey > Cyan

Look at Numerical Comparison (<)

- 123456 < 124679 < 124689 < 12345678 < 12345789 < 1345689 < 12356789 < 1256789

Look at Numerical Operation Index(<)

- (1) > (2) > (3) > (4) > (5) > (6) > (7) > (8).

Look at Cardinal Values (<)

- 12,356,789 > 12,345,789 > 12,345,678 > 1,345,689 > 1,256,789 > 124,689 > 124,679 > 123,456.

Look at Difference Values (>)

- 12356789 — 12345789 = 11000
- 12345678 — 1345689 = 10999989
- 1256789 — 124689 = 1132100
- 124679 — 123456 = 1223

Numerical values of 12356789

(1) Integers: 1 2 3 5 6 7 8 9

(2) Series: 1, 2 , 3, 5, 6, 7, 8, 9.

(3) Sequence: [1 2 3 5 6 7 8 9].

(4) Set: {1, 2, 3, 5, 6, 7, 8, 9}.

(5) Numerical: 12356789.

Numerical values of 12345789

(1) Integers: 1 2 3 4 5 7 8 9

(2) Series: 1, 2 , 3, 4, 5, 7, 8, 9.

(3) Sequence: [1 2 3 4 5 7 8 9].

(4) Set: {1, 2, 3, 4, 5, 7, 8, 9}.

(5) Numerical: 12345789.

Numerical values of 123456

(1) Integers: 1 2 3 4 5 6

(2) Series: 1, 2 , 3, 4, 5, 6.

(3) Sequence: [1 2 3 4 5 6].

(4) Set: {1, 2, 3, 4, 5, 6}.

(5) Numerical: 123456.

0-9
Less Than
Operation <

0-9
Decimal Symbols

0-9
Decimal Symbols

0-9
Decimal Symbols